

INTEGRATED COBALT SILICIDE PROCESS FOR SEMICONDUCTOR DEVICES

ABSTRACT OF THE DISCLOSURE

A method and apparatus are provided for forming a silicide on a semiconductor substrate by integrating under a constant vacuum the processes of removing an oxide from a surface of a semiconductor substrate and depositing a metal on the cleaned surface without exposing the cleaned surface to air. The method and apparatus of the present invention eliminates the exposure of the cleaned substrate to air between the oxide removal and metal deposition steps. This in-situ cleaning of the silicon substrate prior to cobalt deposition provides a cleaner silicon substrate surface, resulting in enhanced formation of cobalt silicide when the cobalt layer is annealed.